CLAIMS AS CURRENTLY PENDING

1. (Previously Presented) A simulation system for simulating operation of an automotive vehicle, said simulation system comprising:

(i) an input device for providing vehicle information and path information; and

(ii) a controller coupled to said input device and operable to simulate said automotive vehicle using a vehicle computer model, wherein said controller is programmed to:

(a) determine an initial steering wheel angle that is input to said vehicle computer model;

(b) determine a new steering wheel angle, which is input to said vehicle computer model at a time later than said initial steering wheel angle, by comparing an intended vehicle path with a look ahead point on said intended vehicle path;

(c) determine whether said vehicle computer model is understeering due to the front of said vehicle computer model plowing or slipping substantially forward in response to said new steering wheel angle;

(d) when said vehicle computer model is determined to be understeering, operate said vehicle computer model with said initial steering wheel angle until a new steering wheel angle is determined such that said plowing or slipping substantially forward is thereby reduced;

(e) when said plowing or slipping substantially forward is reduced by a new steering wheel angle, operate said vehicle computer model with said new steering wheel angle; and

(f) generate an output in response to said vehicle computer model and said initial steering wheel angle or said new steering wheel angle.

2. (Previously Presented) A simulation system as set forth in claim 1, wherein said simulation system further comprises and output device that is coupled to said controller, and said controller is operable to control said output device in response to said vehicle computer model and said initial steering wheel angle or said new steering wheel angle.

3. (Previously Presented) A simulation system as set forth in claim 1, wherein said vehicle computer model comprises a dynamic control model.

4-6. (Cancelled)

7. (Previously Presented) A simulation system as set forth in claim 1, wherein said controller is operable to determine an increasing steering wheel angle by comparing said initial steering wheel angle with said new steering wheel angle.

8. (Previously Presented) A simulation system as set forth in claim 1, wherein said controller is operable to determine a decreasing steering wheel angle by comparing said new steering wheel angle with said initial steering wheel angle or a previously determined new steering wheel angle, and said controller is operable to determine a reduction in said plowing or slipping substantially forward in response to said decreasing steering wheel angle.

9. (Previously Presented) A simulation system as set forth in claim 1, wherein both said initial steering wheel angle and said new steering wheel angle are referenced by said controller from a zero steering wheel angle defined at said front of said vehicle computer model, and said controller is operable to determine a reduction in said plowing or slipping substantially forward in response to a decrease in the absolute value of said new steering wheel angle as compared to said initial steering wheel angle or a previously determined new steering wheel angle.

10. (Previously Presented) A simulation system as set forth in claim 1, wherein both said initial steering wheel angle and each said new steering wheel angle are referenced by said controller from a zero steering wheel angle defined at said front of said vehicle computer model, and said controller is operable to determine when said vehicle computer model is plowing or slipping substantially forward in response to (i) a determined yaw acceleration being greater than a predetermined threshold and (ii) a determined increase in the absolute value of said new steering wheel angle as compared to said initial steering wheel angle or a previously determined new steering wheel angle.

11. (Previously Presented) A simulation system as set forth in claim 1, wherein said controller is operable to determine the steering wheel angle difference between said new steering wheel angle and said initial steering wheel angle or a previously determined new steering wheel angle, and said controller is operable to determine a reduction in said plowing or

slipping substantially forward if said steering wheel angle difference is less than a predetermined tolerance.

12. (Previously Presented) A method of operating a vehicle computer model having vehicle information and path information therein, said method being operable on a digital computer system and comprising the steps of:

(a) determining an initial steering wheel angle that is input to said vehicle computer model;

(b) determining a new steering wheel angle, which is input to said vehicle computer model at a time later than said initial steering wheel angle, by comparing an intended vehicle path with a look ahead point on said intended vehicle path;

(c) determining whether said vehicle computer model is understeering due to the front of said vehicle computer model plowing or slipping substantially forward in response to said new steering wheel angle;

(d) determining whether said vehicle computer model is plowing or slipping substantially forward based on whether a yaw acceleration is greater than a predetermined threshold and also whether said new steering wheel angle is greater than said initial steering wheel angle or a previously determined new steering wheel angle;

(e) when said vehicle computer model is determined to be understeering, operating said vehicle computer model with said initial steering wheel angle until a new steering wheel angle is determined such that said plowing or slipping substantially forward is thereby reduced;

(f) when said plowing or slipping substantially forward is reduced by a new steering wheel angle, operating said vehicle computer model with said new steering wheel angle; and

(g) generating an output in response to said vehicle computer model and said initial steering wheel angle or said new steering wheel angle.

13-15. (Cancelled)

16. (Previously Presented) A method as set forth in claim 12, wherein step (d) is at least partially accomplished by comparing said initial steering wheel angle with said new steering wheel angle.

17. (Previously Presented) A method as set forth in claim 12, said method further comprising the steps of:

determining a decreasing steering wheel angle by comparing said new steering wheel angle with said initial steering wheel angle or a previously determined new steering wheel angle; and

operating said controller to determine a reduction in said plowing or slipping substantially forward in response to said decreasing steering wheel angle.

18. (Previously Presented) A method as set forth in claim 12, said method further comprising the steps of:

operating said controller so as to reference both said initial steering wheel angle and said new steering wheel angle from a zero steering wheel angle defined at said front of said vehicle computer model; and

operating said controller to determine a reduction in said plowing or slipping substantially forward in response to a decrease in the absolute value of said new steering wheel angle as compared to said initial steering wheel angle or a previously determined new steering wheel angle.

19. (Previously Presented) A method as set forth in claim 12, said method further comprising the steps of:

operating said controller so as to reference both said initial steering wheel angle and each said new steering wheel angle from a zero steering wheel angle defined at said front of said vehicle computer model; and

operating said controller to determine when said vehicle computer model is plowing or slipping substantially forward in response to (i) a determined yaw acceleration being greater than a predetermined threshold and (ii) a determined increase in the absolute value of said new steering wheel angle as compared to said initial steering wheel angle or a previously determined new steering wheel angle.

20. (Previously Presented) A method as set forth in claim 12, said method further comprising the steps of:

operating said controller to determine the steering wheel angle difference between said new steering wheel angle and said initial steering wheel angle or a previously determined new steering wheel angle; and

operating said controller to determine a reduction in said plowing or slipping substantially forward if said steering wheel angle difference is less than a predetermined tolerance.

21. (Previously Presented) A method of operating a vehicle computer model having vehicle information and path information therein, said method being operable on a digital computer system and comprising the steps of:

(a) determining a plurality of steering wheel angles, each associated with a different time stamp and input to said vehicle computer model, by comparing an intended vehicle path with a look ahead point on said intended vehicle path at various times;

(b) determining whether said vehicle computer model is understeering due to the front of said vehicle computer model plowing or slipping substantially forward in response to said plurality of steering wheel angles;

(c) determining whether said vehicle computer model is plowing or slipping substantially forward based on whether a yaw acceleration is greater than a predetermined threshold;

(d) when said vehicle computer model is determined to be understeering, operating said vehicle computer model at one of said plurality of steering wheel angles until a later one of said plurality of steering wheel angles is determined such that said plowing or slipping substantially forward is thereby reduced;

(e) when said plowing or slipping substantially forward is reduced by a later one of said plurality of steering wheel angles, operating said vehicle computer model with said later one of said plurality of steering wheel angles; and

(f) generating an output in response to said vehicle computer model and said later one of said plurality of steering wheel angles.

22. (Previously Presented) A method as set forth in claim 21, wherein step (a) is at least partially accomplished by determining said plurality of steering wheel angles periodically.

23. (Previously Presented) A method as set forth in claim 21, wherein said yaw acceleration is a normalized yaw acceleration.

24. (Previously Presented) A method as set forth in claim 23, wherein said normalized yaw acceleration is a steering wheel angle normalized yaw acceleration.

25. (Previously Presented) A method as set forth in claim 21, said method further comprising the step of providing said output to at least one output device selected from the group consisting of a computer screen, a computer printer, a computer disk drive, and a compact disc (CD) read-only memory (ROM) drive.

26. (Previously Presented) A method as set forth in claim 21, said method further comprising the steps of:

determining a decreasing steering wheel angle by comparing a later one of said plurality of steering wheel angles with an earlier one of said plurality of steering wheel angles; and

operating said controller to determine a reduction in said plowing or slipping substantially forward in response to said decreasing steering wheel angle.

27. (Previously Presented) A method as set forth in claim 21, said method further comprising the steps of:

operating said controller so as to reference both an earlier one of said plurality of steering wheel angles and a later one of said plurality of steering wheel angles from a zero steering wheel angle defined at said front of said vehicle computer model; and

operating said controller to determine a reduction in said plowing or slipping substantially forward in response to a decrease in the absolute value of said later one of said plurality of steering wheel angles as compared to said earlier one of said plurality of steering wheel angles.

28. (Previously Presented) A method as set forth in claim 21, said method further comprising the steps of:

operating said controller so as to reference both an earlier one of said plurality of steering wheel angles and a later one of said plurality of new steering wheel angles from a zero steering wheel angle defined at said front of said vehicle computer model; and

operating said controller to determine whether said vehicle computer model is plowing or slipping substantially forward in response to a determined increase in the absolute value of said later one of said plurality of steering wheel angles as compared to said earlier one of said plurality of steering wheel angles.

29. (Previously Presented) A method as set forth in claim 21, said method further comprising the steps of:

operating said controller to determine the steering wheel angle difference between said later one of said plurality of steering wheel angles and said earlier one of said plurality of steering wheel angles; and

operating said controller to determine a reduction in said plowing or slipping substantially forward if said steering wheel angle difference is less than a predetermined tolerance.